



The Socioeconomic Mapping and Resource Topography (SMART) System

Using Geographic Information Systems (GIS) to effectively communicate complex issues including crime problems, community and governmental assets, and socioeconomic factors.



The Office of Juvenile Justice and Delinquency Prevention (OJJDP) provides national leadership, coordination, and resources to prevent and respond to juvenile delinquency and victimization. OJJDP supports states and communities in their efforts to develop and implement effective and coordinated prevention and intervention programs and to improve the juvenile justice system so that it protects public safety, holds offenders accountable, and provides treatment and rehabilitative services tailored to the needs of juveniles and their families.



Why GIS?

- OJJDP is seeking to use technology to further the following concepts and priorities: provide federal leadership; enhance interagency cooperation and coordination; empower communities; and emphasize evidenced-based and proven practices.
- This system was developed in order to support the early identification of issues and assist decision-makers with identifying grounded and rapid interventions/responses
- It will allow the users to locate resources and incidents of crime and delinquency and other social indicators, visualize the data, and perform complex location-based analysis that will lead to better decision-making.



SMART + Kaleidocade

A Technical Discussion

David Zwarg, Avencia Incorporated

9th Crime Mapping Research Conference
March 30th, 2007

www.avencia.com

Presentation Contents

- **Introduction**
- Previous Work
- Implementation
- Challenges
- Future Directions

Introduction

- Team: Dr. Cecelia Buchanan, Robert Cheetham, Dave Felcan, Chip Hitchens, and David Zwarg
- Our Work
 - Web-Based Software Development
 - Focused on Geography, Mapping, Spatial Inquiry
 - Complex, Challenging or Interesting Problems
- Our Focus
 - Business Siting, Economic Development
 - Real Estate
 - Marketing and Business Intelligence
 - History and Culture
 - Health and Human Services
 - Conservation and Natural Resources
 - Public Safety, Crime Analysis, and Security

Previous Work

- Previous projects have been based on the Services Utilization Monitoring System (SUMS)
- Current SUMS implementations at the Cartographic Modeling Lab
 - neighborhoodBase
 - schoolBase
 - crimeBase
- Other SUMS implementation
 - Community Research Partners DataSource:
The Franklin County (Ohio) Community Data System
 - Palm Beach County, Florida

neighborhoodBase

Data Views

- Tables
- Summary Stats
- Scatter Charts
- Maps
- Trend Charts
- User-defined Neighborhoods
- Neighborhood Reports
- Data Matrix

Data Dictionary

- GIS Data
- Help
- About nBase
- Feedback

Version 2.2.4
7/30/2005

CML Home NIS Home

Philadelphia NIS neighbor

Welcome to neighbo

New Users:

If you are new to the neigh please take a look at the instr

Disclaimer:

Important:

- The maps and data displayed been prepared for the invent property found within the nei Philadelphia. Users of this site notified that the aforementioned information sources should be verification of the information maps and in the databases p web site. Neither the Univers Pennsylvania, the City of Phil Cartographic Modeling Labora collaborators assume any leg for the information displayed associated tabular data prese site.

Home Data Dictionary Redefine Map Parameters

QUANTILE Map - NIS Neighborhoods: Residential Sale Price, Median - Median residential sales. (Residential properties are defined as Detached, Semi-Detached and Rowhouse building types)

Add/Remove Layers

1999 Residential Sale Price, Median

- 4850 - 22251
- 22252 - 46000
- 46001 - 64000
- 64001 - 92500
- 92501 - 220001

Streets 1

City Boundary

Water

Parks

Copyright Notice: ©2001-2007 Cartographic Modeling Laboratory. All rights reserved.

Home
Data Dictionary
Redefine Chart Parameters

Scatter Charts

Philadelphia NIS CrimeBase

Welcome to crimeBase

New Users:

If you are new to the system, please take a look at the instructions.

Disclaimer:

Important:

- The data for this application is available by the Philadelphia Police Department. The data is from the Police Department's Incident Reporting System (INRS). This data is a record of incidents to which the Philadelphia Police Department has responded. It does not include updates that occurred prior to the current incident. However, if there is a re-categorization of an incident within a 30-day window, it will not be included in the current database. As a result, the data here are, at best, a snapshot of Philadelphia. However, the data is comprehensive and broadly available. Several categories of crimes are not included in crimeBase due to this difference. These include sexual assaults, aggravated assaults by a firearm, and some sexual assaults. In crimeBase many homicides are categorized as aggravated assaults by a firearm. Anyone using this information should read the disclaimer and should be aware of the limitations in interpreting the data.
- Location coordinates used in crimeBase are based on the Street Centerline file. There is an automated address location error rate, usually from 100 to 200 feet, based on addresses.

Geography: Police Districts

Data Element(s):

- * 2004, Residential Burglaries - Residential Burglaries
- * 2004, Commercial Burglaries - Commercial Burglaries

Tools

Philadelphia CrimeBase

To save the chart to your local drive, use the right mouse button (or hold down the mouse for the Macintosh), click on the chart image above and select 'Save Image As...' (Netscape) or 'Save Picture As...' (IE) to save the file to your local hard drive.

Presentation Contents

- Introduction
- Previous Work
- **Implementation**
- Challenges
- Future Directions

How Can We Best Support The OJJDP Mission?

- Make data and resources available to diverse end-users, including
 - Grantees
 - OJJDP Staff
 - Juvenile justice professionals
 - Law Enforcement
 - Researchers/policy analysts
 - General public
- Publish aggregated data and resource location information on a national scale
- Enable basic crime and event mapping for communities
- Provide geographic indicators for service providers to help them better target service delivery

Why Create The Kaleidocade Indicators Framework (KIF)?

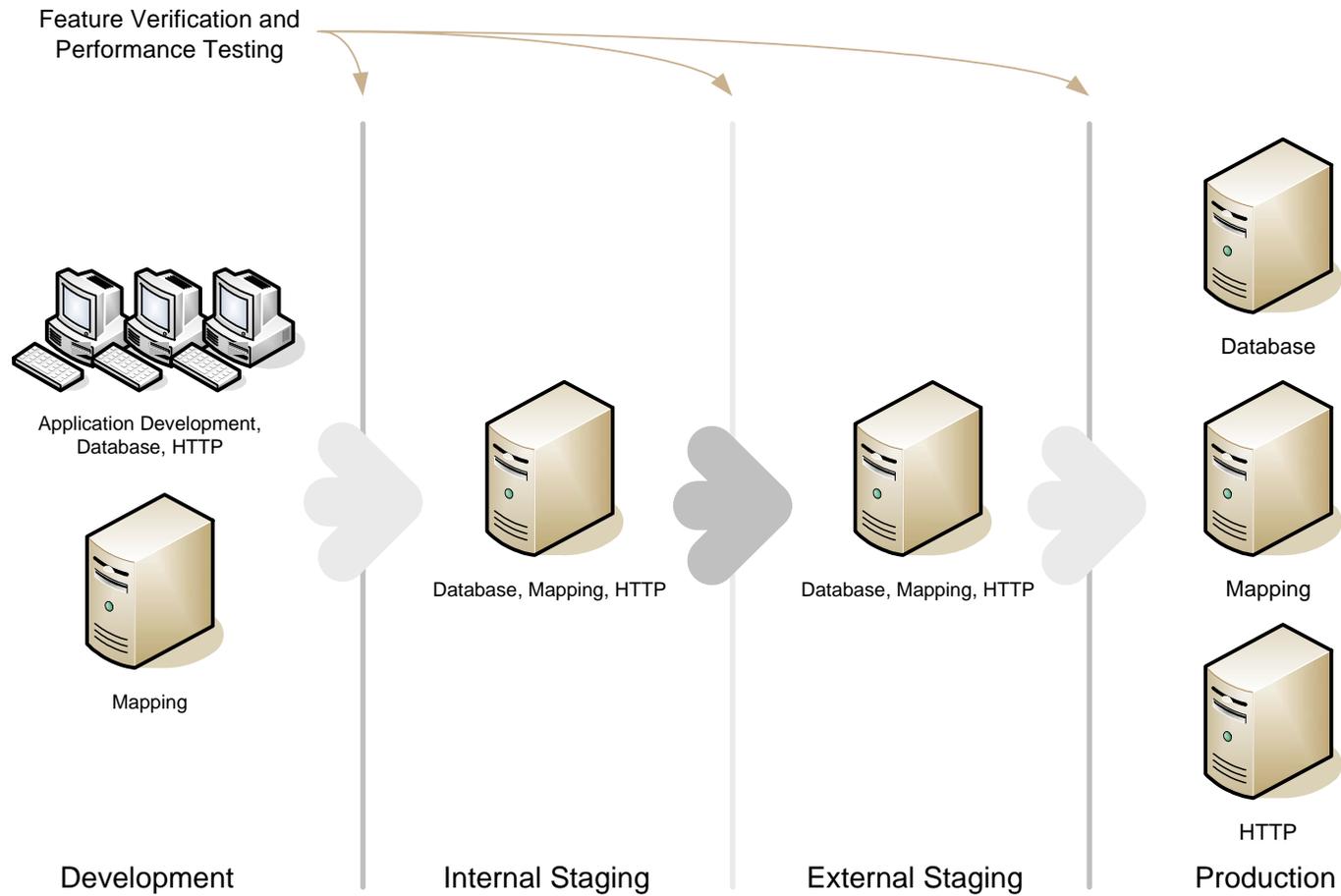
- Diversity
 - Flexibility
 - Expanded functionality
 - Developed as a core set of features with customer-specific extensions
- SUMS architecture is written in Visual Basic with COM and ASP
 - New features cannot be supported on this architecture
 - Originally developed for the Cartographic Modeling Lab, University of Pennsylvania
- Developing KIF on modern infrastructure enabled Avencia to:
 - Add interactivity with AJAX
 - Support modern programming techniques with .NET 2.0
 - Program code written in object-oriented C#
 - Expand feature set

Kaleidocade Infrastructure

- ESRI components
 - Mapping: ArcIMS
 - Resources: ArcSDE
 - Geocoding: ArcWebServices
- NAVTEQ
 - Base map
- Microsoft
 - SQL Server 2005
 - Windows Server 2003
 - .NET Framework 2.0
 - ASP.NET



Kaleidocade Infrastructure



Presentation Contents

- Introduction
- Previous Work
- Implementation
- **Challenges**
- Future Directions

Challenges Implementing KIF

- Rapid development time
- Provide data for all communities in the nation
- Optimizing data processing and access model
- Maintaining resource data

Provide sophisticated features that are easy to understand



Supporting multiple browsers for rich interactivity

Home | Mapping & Analysis | About SMART | Data Dictionary | Help My Account | Logout

edit Current Indicator Collection: Pennsylvania Poverty Current Geographic Area: National > Pennsylvania

map table stats ranked report

County	% of Families that are in Poverty, 2000	% of Children that are in Poverty, 2000	% of Individuals that are in Poverty, 2000
Alleghey	8		
Armstrong	9		
Beaver	7		
Bedford	8		
Berks	6		
Lehigh	9	15	12
Schuylkill	6	10	9
Berks	9	17	12
Pennsylvania	7	12	9
Lebanon	7	14	10
Lancaster	6	11	19
Chester	10	17	15
Clinton	9	18	13
Columbia	9	18	14
Crawford	7	14	13
Dauphin	9	18	13
Delaware	8	14	10
Elk	6	10	8
Erie	5	10	7
Erie	8	16	12
Franklin	8	16	12
Franklin	5	10	8
Fulton	8	15	11

Assign Filter
 % of Children that are in Poverty, 2000
 Min: 10
 Max: 20
 Remove Set

Index Map
 32.8mi

Future Directions

- Upgrade to ESRI Application Development Framework (ADF) controls
- Enable user upload of geographic data
- Enable user defined geographic regions for analysis
- Add quick and easy reports

Presentation Contents

- Introduction
- Previous Work
- Implementation
- Challenges
- Future Directions



Information/data in the system:

- Indicators - National archival data sets, such as:
 - Census data
 - UCR data
- Resource Points – pre-existing, static points that have been categorized, such as:
 - OJJDP Resources
 - Police departments
 - DOL One Stop Office
 - Weed and Seed Programs
- User-uploaded point data
 - addresses of places
 - addresses of incidents

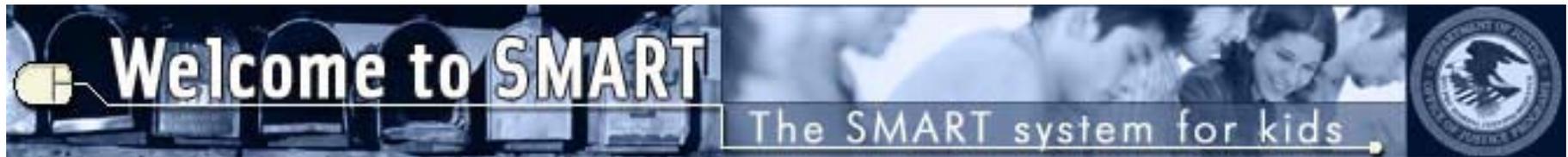


<http://smart.gismapping.info>



Next Steps:

- Indicators - National archival data sets, such as:
 - State specific data sets (e.g. KidsCount)
 - 10-12 years of UCR data
- Resource Points – pre-existing, static points that have been categorized, such as:
 - OJP resources (i.e. BJA and OVC)
 - Other federal agency resources (e.g. DOE, HHS, ..)
- User-uploaded point data
 - New Castle County, DE
 - Other Law Enforcement agencies
 - Orleans Parish, LA



Now What?

- SMART is being used as a management tool within the agency.
 - Most accurate listing of all active OJJDP awards
 - A system that can validate or focus our efforts.
 - Numerous other community resources maintained.
- SMART can be used by grant administrators within the States.
 - Most accurate accounting of all active OJJDP awards.
 - National archival data sets organized according to a youth developmental approach at their fingertips.
 - Numerous other community resources maintained.
- SMART can be used by law enforcement to look at incidents of crime in relation to mitigating factors or resources.
 - Social demographic information in relation to the incidents of crime and delinquency.
 - Numerous other community resources maintained.
- SMART can be used by local community decision-makers when it comes to resource allocation or *justification* or just to locate and access available resources.
 - Aggregate social demographic data that can help validate their concerns.
 - Functionality that allows them to upload more accurate information to justify what they know.

